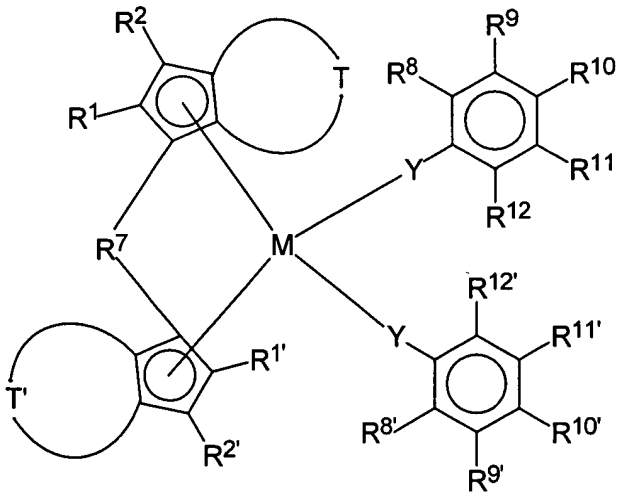
AMENDMENTS TO THE CLAIMS

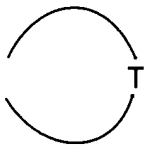
1-15. (Canceled).

16. (New) A process for preparing racemic metallocene complexes of the formula (I)

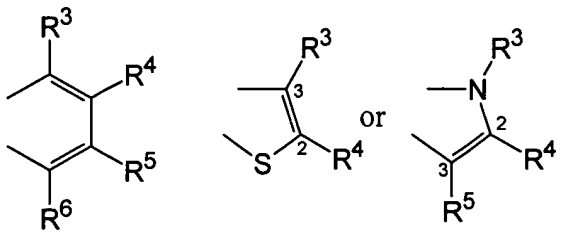


(I)

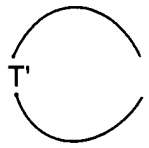
where



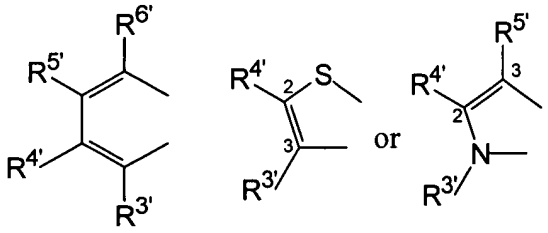
is a divalent group



and



is a divalent group



and the substituents and indices have the following meanings:

M is titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum or tungsten,

R^1, R^2, R^3, R^4, R^5, R^6, R^9, R^{10}, R^{11}, $R^{1'}$, $R^{2'}$, $R^{3'}$, $R^{4'}$, $R^{5'}$, $R^{6'}$, $R^{9'}$, $R^{10'}$ and $R^{11'}$ are identical or different and are each hydrogen, halogen, C_1–C_{20}–alkyl, 3– to 8–membered cycloalkyl which optionally bears a C_1–C_{10}–alkyl group as substituent, C_6–C_{15}–aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, arylalkyl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, $-OR^{13}$, $-SR^{13}$, $-N(R^{13})_2$, $-P(R^{13})_2$, or $Si(R^{13})_3$, where

R^{13} are identical or different and are each C_1-C_{10}-alkyl, C_6-C_{15}-aryl, C_3-C_{10}-cycloalkyl, alkylaryl, where the radicals mentioned may be partially or fully substituted by heteroatoms,

R^8, R^{12}, $R^{8'}$ and $R^{12'}$ are identical or different and are each C_1-C_{10}-alkyl,

Y is oxygen

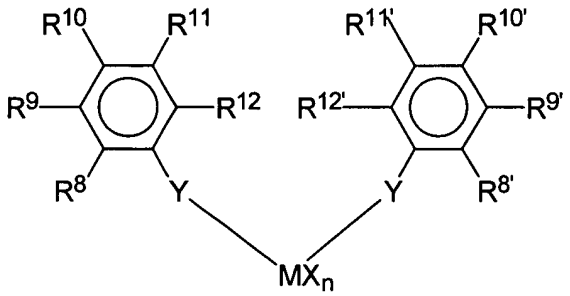
R^7 is a $-[Z(R^{15})(R^{16})]_m-$ group, where

Z are identical or different and are each silicon, germanium, tin or carbon,

R^{15} and R^{16} are each hydrogen, C_1-C_{10}-alkyl, C_3-C_{10}-cycloalkyl or C_6-C_{15}-aryl,

m is 1, 2, 3 or 4,

which comprises reacting a transition metal complex of the formula (II)



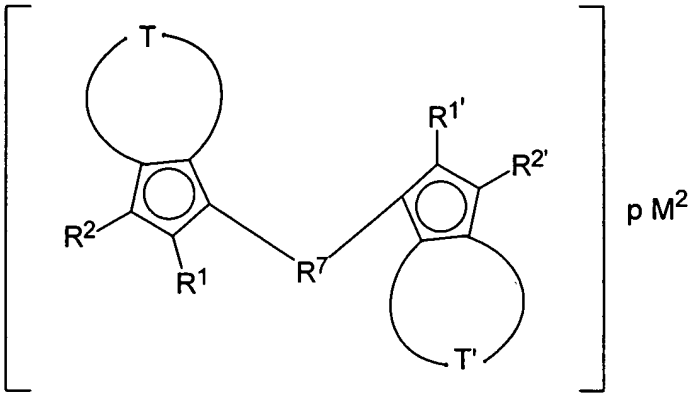
(II)

where

X are identical or different and are each hydrogen, halogen, C_1–C_{10}–alkyl, C_6–C_{15}–aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, $–OR^{17}$ or $-NR^{17}_2$, where R^{17} are identical or different and are each C_1-C_{10}-alkyl, C_6-C_{15}-aryl, C_3-C_{10}-cycloalkyl, alkylaryl,

n is an integer from 1 to 4 and corresponds to the valence of M minus 2,

with cyclopentadienyl derivatives of the formula (III)



(III)

where

M^2 is an alkali metal ion or alkaline earth metal ion,

and

p is 1 when M^2 is an alkaline earth metal ion and is 2 when M^2 is an alkali metal ion,

and heating the resulting reaction mixture to a temperature in the range from –78 to +250°C.

17. (New) The process as claimed in Claim 16,
wherein the substituents R^8, $R^{8'}$, R^{12} and $R^{12'}$ are identical and are selected from the group consisting of methyl, ethyl, n-propyl, i-propyl, n-butyl, sec-butyl and tert-butyl.

18. (New) The process as claimed in Claim 16,
wherein the substituents R^1 and $R^{1'}$ are identical or different and are each hydrogen or methyl.

19. (New) The process as claimed in Claim 18,
wherein the substituents R^8, $R^{8'}$, R^{12} and $R^{12'}$ are identical and are methyl.

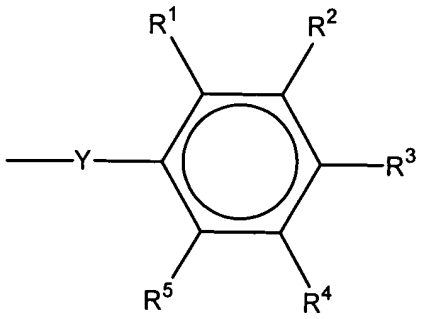
20. (New) The process as claimed in Claim 16,
wherein M is titanium, zirconium or hafnium.

21. (New) The process as claimed in Claim 20, wherein M is zirconium.

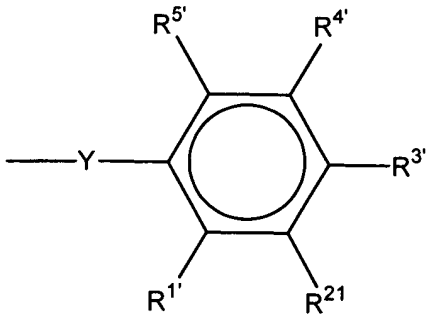
22. (New) The process as claimed in Claim 16, wherein M^2 is magnesium or lithium.

23. (New) The process as claimed in Claim 16, wherein R^7 is a dimethylsilyl group or an ethanediyl group.

24. (New) The process as claimed in Claim 16, wherein in a further step, the compound of the formula (I) is reacted with suitable replacement reagents to replace at least one of the groups



or



by halogen substituents F, CI, Br or I or by linear, branched or cyclic C_{1-10}-alkyl substituents.

25. (New) The process as claimed in Claim 24, wherein the replacement reagents are selected from the group consisting of aliphatic and aromatic carboxylic acid halides, organoaluminum compounds and combinations thereof.

26. (New) The process as claimed in Claim 24, wherein the replacement reagents are selected from the group consisting of acetyl chloride, phenylacetyl chloride, 2–thiophenacetyl chloride, trichloroacetyl chloride, trimethylacetyl chloride, O–acetylmandelyl chloride, 1,3,5–benzenetricarboxylic chloride, 2,6–pyridinecarboxylic chloride, tert–butylacetyl chloride, chloroacetyl chloride, 4–chlorobenzacetyl chloride, dichloroacetyl chloride, 3–methoxyphenylacetyl chloride, acetyl bromide, bromoacetyl bromide, acetyl fluoride, benzoyl fluoride, $SOCl_2$, silicon

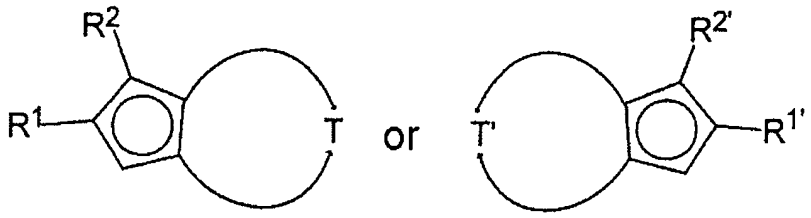
tetrachloride, trimethylaluminum, triethylaluminum, tri-n-butylaluminum, triisobutylaluminum, and dialkylaluminum chlorides, aluminum sesquichlorides, methylaluminum dichloride, dimethylaluminum chloride, aluminum trichloride, ethylaluminum dichloride and combinations thereof.

27. (New) The process as claimed in Claim 25, wherein replacement reagents used are HF, HBr, HI, or HCl, or as solutins in water, diethyl ether, DME or THF.

28. (New) The process as claimed in Claims 16, wherein no intermediates are isolated during the process.

29. (New) The process as claimed in Claim 16 comprising the following steps:

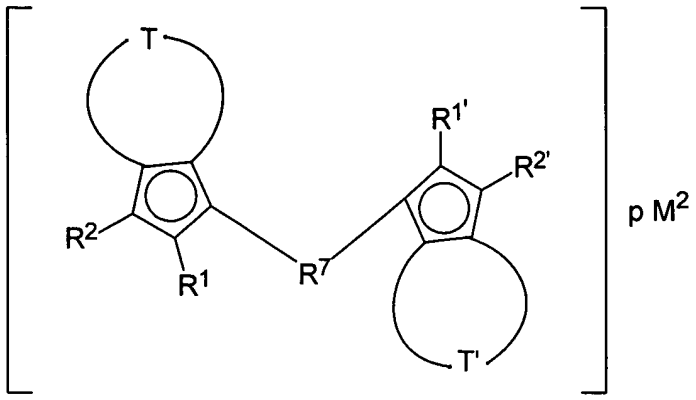
a) deprotonating a compound of the formula (IV)



(IV)

by means of a deprotonating agent;

b) reacting the deprotonated compound (IV) with a compound R^7Hal_2, where Hal is a halogen substituent F, Cl, Br or I, and subsequent repeat deprotonation by means of a suitable deprotonating agent to give the compound of the formula (III)



(III)

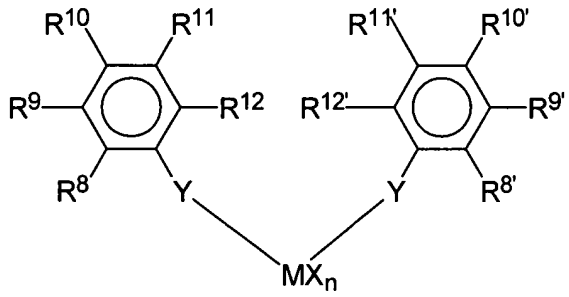
where

M^2 is an alkali metal ion or alkaline earth metal ion,

where

p is 1 when M^2 is an alkaline earth metal ion and is 2 when M^2 is an alkali metal ion, and R^7 is in claim 16;

c) reacting the compound of the formula (III) with a transition metal complex of the formula (II)



(II)

where

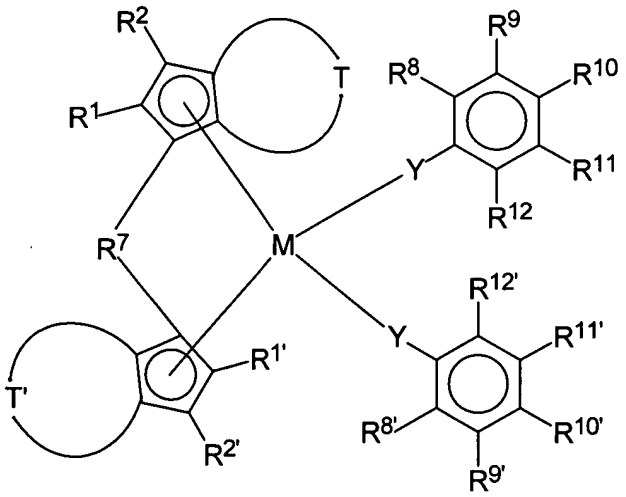
X are identical or different and are each hydrogen, halogen, C_1–C_{10}–alkyl, C_6–C_{15}–aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, $-OR^{17}$ or-NR^{17}_2, where R^{17} are identical or different and are each C_1-C_{10}-alkyl, C_6-C_{15}-aryl, C_3-C_{10}-cycloalkyl, alkylaryl,

n is an integer from 1 to 4 and corresponds to the valence of M minus 2, and the other substituents in claim 16.

30. (New) The process as claimed in Claim 29, wherein the deprotonating agent is n-butyllithium, tert-butyllithium, sodium hydride, potassium tert-butoxide, or Grignard reagents of magnesium, magnesium compounds.

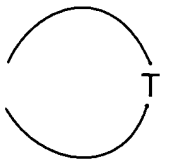
31. (New) The process as claimed in Claim 29, wherein the deprotonating agent is an alkaline earth metal alkyl or alkali metal alkyl compound.

32. (New) A racemic metallocene complex of the formula (I)

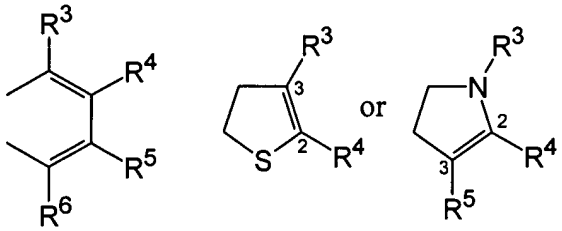


(I)

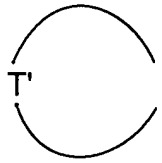
where



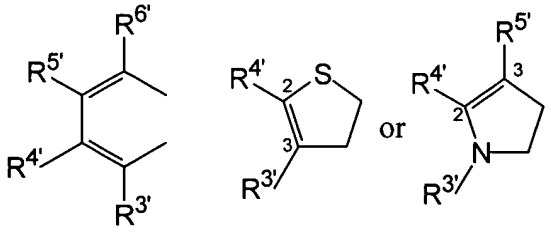
is a divalent group



and



is a divalent group



and the substituents and indices have the following meanings:

M is titanium, zirconium hafnium, vanadium, niobium, tantalum, chromium, molybdenum or tungsten,

R^1, R^2, R^3, R^4, R^5, R^6, R^9, R^{10}, R^{11}, $R^{1'}$, $R^{2'}$, $R^{3'}$, $R^{4'}$, $R^{5'}$, $R^{6'}$, $R^{9'}$, $R^{10'}$ and $R^{11'}$ are identical or different and are each hydrogen, halogen, C_1–C_{20}–alkyl, 3– to 8–membered cycloalkyl which optionally bears a C_1–C_{10}–alkyl group as substituent, C_6–C_{15}–aryl, alkylaryl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, arylalkyl having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part, $-OR^{13}$, $-SR^{13}$, $-N(R^{13})_2$, $-P(R^{13})_2$ or $Si(R^{13})_3$, where

R^{13} are identical or different and are each C_1-C_{10}-alkyl, C_6-C_{15}-aryl, C_3-C_{10}-cycloalkyl, alkylaryl, where the radicals mentioned may be partially or fully substituted by heteroatoms,

R^8, R^{12}, $R^{8'}$ and $R^{12'}$ are identical or different and are each C_1-C_{10}-alkyl,

Y are oxygen

R^7 is a $-[Z(R^{15})(R^{16})]_m-$ group, where

Z are identical or different and are each silicon, germanium, tin or carbon,

R^{15} and R^{16} are each hydrogen, C_1-C_{10}-alkyl, C_3-C_{10}-cycloalkyl or C_6-C_{15}-aryl,
and

m is 1, 2, 3 or 4.

33. (New) The complex as claimed in claim 32 selected from the group consisting of dimethylsilylbis(1-indenyl)zirconium bis(2,4,6-trimethylphenoxide), dimethylsilylbis(2-methyl-1-indenyl)zirconium bis(2,4,6-trimethylphenoxide), dimethylsilylbis(2-methyl-1-indenyl)zirconium bis(2,6-dimethylphenoxide), dimethylsilylbis(2-methyl-1-indenyl)zirconium bis(2,6-dimethyl-4-bromophenoxide) and ethanediylbis(1-indenyl)zirconium bis(2,4,6-trimethylphenoxide).

34. (New) The complex as claimed in Claim 32,
wherein the substituents R^8, $R^{8'}$, R^{12} and $R^{12'}$ are identical and are selected from the group consisting of methyl, ethyl, n-propyl, i-propyl, n-butyl, sec-butyl and tert-butyl.

35. (New) The complex as claimed in Claim 32,
wherein the substituents R^1 and $R^{1'}$ are identical or different and are each hydrogen or methyl.

36. (New) The complex as claimed in Claim 35,
wherein the substituents R^8, $R^{8'}$, R^{12} and $R^{12'}$ are identical and are methyl.

37. (New) The complex as claimed in Claim 32,
wherein M is titanium, zirconium or hafnium.

38. (New) The complex as claimed in Claim 37,
wherein M is zirconium.

39. (New) The complex as claimed in Claim 32, wherein M^2 is magnesium or lithium.

40. (New) The complex as claimed in Claim 32, wherein R^7 is a dimethylsilyl group or an ethanediyl group.

41. (New) A catalyst comprising the racemic metallocene complex of claim 32.

42. (New) A process for polymerizing olefinically unsaturated compounds which comprises using the catalyst as claimed in claim 41.

43. (New) A process for stereoselective synthesis which comprises using the catalyst as claimed in claim 41.